REMARKS/ARGUMENTS

These remarks are in response to the Final Office Action dated April 8, 2004. Claims 1-10 are pending in the present application. Claims 1-10 have been rejected. Claims 1-10 remain pending. For the reasons set forth more fully below, Applicants respectfully submit that the claims as presented are allowable. Consequently, reconsideration, allowance, and passage to issue are respectfully requested.

In the event, however, that the Examiner is not persuaded by Applicants' arguments, Applicants respectfully request that the Examiner enter the arguments to clarify issues upon appeal.

Claim Rejections - 35 U.S.C. §102

The Examiner has stated:

> **Response to Arguments**
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> **Applicant's arguments, see p. 3-6, filed March 22, 2004, with respect to the rejection(s)of claim(s) 1-10 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of 35 U.S.C. 102(b) as being anticipated by "Anonymous RPC: Low-Latency Protection in a 64-Bit Address Space" (hereinafter Yarvin).**
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> **Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by "Anonymous RPC: Low-Latency Protection in a 64-Bit Address Space" (hereinafter Yarvin).**
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> **As to claim 1, Yarvin teaches remote procedure calls in a multiprocessing system [cross-domain remote procedure call; p.1, Abstract], the multiprocessing system including a general purpose processor and a plurality of network processors [for cross-domain procedure calls with few arguments, the domain cost is saving, clearing, and restoring the registers; Section 3.2.2, p. 5 - 6]; each of the plurality of network processors having a memory [processors with large register sets; Section 3.2.2, p. 5 - 6], comprising the steps of:**
>
> **(a) accessing a reserved address [path of control must flow through some intermediary: an entity which is self protected, aware of the RPC binding; Section 3.1, p.4] in the memory of at least one of the plurality of network processors [hose architecture supports execute-only page protection; Section 3.1, p. 4], wherein the reserved address comprises a**

first portion [name] and a second [address] portion [registering an entry point, it gives the RPC manager the name and address of the procedure; Section 3.2.1, p. 5], wherein the reserved address is known to a remote procedure call requestor [caller knows the address of the callee's text, but cannot damage that text or discover where the data might be; Section 3.1, p. 4], wherein the second portion comprises a pointer for an instruction address of a procedure code [registering an entry point, it gives the RPC manager the name and address of the procedure; Section 3.2.1, p. 5], wherein the instruction address is not known to the remote procedure call requestor [to preserve anonymity, the path of control must flow through some intermediary...manage control and data flow without revealing either part's address to each other; cannot give the caller the actual entry point in the callee's code; Section 3.1, p. 4];

(b) initiating a software action by the first portion [jump instruction] of the reserved address [clients view of the remote call can simply be a function pointer whose target address is the jump instruction in the anonymity table; p. 6, 3rd paragraph], wherein the software action comprises obtaining the pointer [entry point] in the second portion of the reserved address [contain the entry point as an immediate operand; Section 3.1, p. 4]; and

(c) accessing and processing the procedure code at the instruction address utilizing the pointer [use an execute-only jump table, synthesized to contain the entry point as an immediate operand; Section 3.1, p. 4]. ...

Applicants respectfully disagree with the Examiner's rejections. For the Examiner's convenience, independent claim 1 is reproduced in its entirety herein below.

Claim 1

1. (previously amended) A method for providing remote procedure calls in a multiprocessing system, the multiprocessing system including a general purpose processor and a plurality of network processors; each of the plurality of network processors having a memory, the method comprising the steps of:

(a) accessing a reserved address in the memory of at least one of the plurality of network processors, wherein the reserved address comprises a first portion and a second portion, wherein the reserved address is known to a remote procedure call requestor, wherein the second portion comprises a pointer for an instruction address of a procedure code, wherein the instruction address is not known to the remote procedure call requestor;

(b) initiating a software action by the first portion of the reserved address, wherein the software action comprises obtaining the pointer in the second portion of the reserved address; and

(c) accessing and processing the procedure code at the instruction address utilizing the pointer.

The present invention provides a method for providing remote procedure calls in a multiprocessing system including a general-purpose processor and a plurality of network

processors. Each of the plurality of network processors has a memory. The method comprises accessing a reserved address in the memory of at least one of the plurality of network processors, where the reserved address comprises a first portion and a second portion. The reserved address is known to a remote procedure call requestor. The second portion comprises a pointer for an instruction address of a procedure code, and the instruction address is not known to the remote procedure call requestor. The method further comprises initiating a software action by the first portion of the reserved address, where the software action comprises the step of obtaining the pointer in the second portion of the reserved address. The method further comprises accessing and processing the procedure code at the instruction address utilizing the pointer. (Summary and Figure 6 and on page 6, line 21, to page 7, line 6.) Yarvin does not teach or suggest these features, as discussed below.

Yarvin discloses a method of reducing the latency of cross-domain remote procedure call (RPC) by using anonymity instead of hardware page tables for protection. Logically independent memory segments are placed at random locations in the same address space and protection domain. 64-bit virtual addresses are used to make it more difficult to locate a memory segment location with the address (Abstract and Introduction, pages 1 and 2).

However, Yarvin does not teach or suggest the **reserved address** comprising a first portion and a second portion, "wherein the second portion comprises a pointer for an instruction address of a procedure code, wherein the instruction address is not known to the remote procedure call requestor," as recited in independent claim 1. Instead, Yarvin teaches an "**execute-only jump table**." The jump table of Yarvin is different from the reserved address of

the present invention, because the jump table requires execution stacks (i.e., memory) to be allocated for each client (page 5, section 3.2.1, third paragraph). The reserved address of the present invention eliminates the need for a jump table to provide the instruction address for the remote procedure. This is beneficial because a jump table requires pre-allocated memory space and other resources to regularly update the jump table's index (specification, page 1, line 18, to page 2, line 3). Yarvin even states that allocating stacks "may seem wasteful of memory, but stacks can be cached and unmapped when not in frequent use."

Since Yarvin does not teach or suggest the reserved address, Yarvin also does not teach or suggest the second portion, "wherein **the instruction address is not known to the remote procedure call requestor,**" as recited in independent claim 1. Yarvin clearly states that the "caller knows the address of the callee's text" (Page 4, section 3.1, 4th paragraph). This *teaches away* from the present invention where the instruction address is not known to the remote procedure call requestor.

Therefore, Yarvin does not teach or suggest the present invention as recited in independent claim 1, and this claim is allowable over Yarvin.

Independent claim 6

Similar to independent claim 1, independent claim 6 recites a reserved address comprising a first portion and a second portion, "wherein the second portion comprises a pointer for an instruction address of a procedure code, wherein the instruction address is not known to the remote procedure call requestor." As described above, with respect to independent claim 1, Yarvin does not teach or suggest these features. Accordingly, the above-articulated arguments

related to independent claim 1 apply with equal force to claim 6. Therefore, claim 6 is allowable over Yarvin for at least the same reasons as claim 1.

Remaining dependent claims

Dependent claims 2-5 and 7-10 depend from independent claims 1 and 6, respectively. Accordingly, the above-articulated arguments related to independent claims 1 and 6 apply with equal force to claims 2-5 and 7-10, which are thus allowable over the cited reference for at least the same reasons as claims 1 and 6.

Conclusion

In view of the foregoing, Applicants submit that claims 1-10 are patentable over the cited reference. Applicants, therefore, respectfully request reconsideration and allowance of the claims as now presented.

Applicants' attorney believes that this application is in condition for allowance. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,

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Date

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